



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/594,756

09/29/2006

Kazuyoshi Inoue

ITO-0003

4694

23599

7590

03/02/2010

MILLEN, WHITE, ZELANO & BRANIGAN, P.C.

2200 CLARENDON BLVD.

SUITE 1400

ARLINGTON, VA 22201

EXAMINER

BAND, MICHAEL A

ART UNIT

PAPER NUMBER

1795

NOTIFICATION DATE

DELIVERY MODE

03/02/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@mwzb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/594,756	<b>Applicant(s)</b> INOUE ET AL.	
	<b>Examiner</b> MICHAEL BAND	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 6-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/29/2006; 3/5/2008</u> .                                     | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I, claims 1-5 in the reply filed on 12/22/2009 is acknowledged. The traversal is on the ground(s) that no burden exists. This is not found persuasive because for a PCT application, the Examiner has shown that a burden does exist since the special technical feature is known in that art. With regards to the special technical feature, Fukuyoshi et al discloses a sputtering target comprising indium oxide and cerium oxide, where the measured diameter of particles of cerium oxide dispersed in indium oxide is 2  $\mu\text{m}$  or less (abstract; para 0043-0044).

The requirement is still deemed proper and is therefore made FINAL.

Claims 6-9 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Group, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 12/22/2009.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 4 requires a density of 6.6 or more. It is unclear as what

Art Unit: 1795

units of measurement accompany the claimed value range. For examination purposes, it has been assumed that the units of measurement are g/cm<sup>2</sup>.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4 are rejected under 35 U.S.C. 102(b) as anticipated by Fukuyoshi et al (JP No. 09176841).

With respect to claims 1-2, Fukuyoshi et al discloses a sputtering target comprising mixed oxides of cerium oxide and indium oxide (abstract), where the particle diameter of each oxide incorporated into the target is 2 μm or less (para 0043-0044). Despite Fukuyoshi et al not specifying how the diameter of the particle is observed and measured, it is either inherent that any type of observing and measuring technique, including the claimed techniques, can be used since the particle diameter is a constant value that is not altered nor dependent by observing and measuring techniques.

With respect to claim 3, Fukuyoshi et al further discloses the sputter target comprising indium oxide and cerium oxide in addition to smaller quantities of tin oxide and titanium oxide (para 0027), where tin oxide has a concentration of 0.1at% to 5at%, titanium oxide has a concentration of 0.1at% to 5at%, and cerium oxide has a concentration of 5at% to 60at% (para 0019, 0025, 0032). Taking the minimum amount

Art Unit: 1795

of combined concentrations of tin, titanium, and cerium (i.e. 0.1at%, 0.1at%, 5at%, respectively) results in a balance of indium oxide 94.8at%, resulting in  $[5\text{at\%}]/[94.8\%]+[5\text{at\%}]$  equals approximately 0.05.

With respect to claim 4, Fukuyoshi et al further discloses the density of the indium oxide and cerium oxide sputter target is  $6.9 \text{ g/cm}^2$  and a resistance of  $2 \times 10^{-2} \Omega\text{cm}$  (para 0057, 0061).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuyoshi et al (JP No. 09176841) as applied to claim 1 above, and further in view of Hosokawa et al (WO 2004/017137), equivalent to Hosokawa et al (USPGPub 2006/0049410).

With respect to claim 5, the reference is cited as disclosed for claim 1. However Fukuyoshi et al is limited in that while the cerium oxide is  $\text{CeO}_2$ , and thus is a positive quadravalent, it is not suggested for said cerium oxide to be  $\text{Ce}_2\text{O}_3$ , and thus being a positive trivalent.

Hosokawa et al teaches an inorganic (i.e. conductive) film formed via sputtering, and thus, from a sputtering target (p. 1, para 0013-0016; p. 2, para 0032-0039; p. 4,

Art Unit: 1795

para 0090). Since the inorganic film is formed via sputtering, it is obvious that the sputtering target used to deposit said inorganic film comprises the components of said inorganic film. Hosokawa et al further teaches the inorganic film comprises one or more metals from Group A comprising In, Sn, Ga, Si, Ge, Zn, Cd, Mg, Al, Ta, and Ti and one or more metals from Group C comprising Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu, where the compounds are oxides (p. 2, para 0032-0034, 0036). Hosokawa et al also teaches specific examples of the Group A compound as  $\text{In}_2\text{O}_3$  and the Group B compound as  $\text{Ce}_2\text{O}_3$  or  $\text{CeO}_2$  (p. 3, para 0072, 0083).

Since the prior art of Hosokawa et al recognizes the equivalency of  $\text{Ce}_2\text{O}_3$  and  $\text{CeO}_2$  in the field of sputter targets used to deposit conductive films, it would have been obvious to one of ordinary skill in the art to replace  $\text{CeO}_2$  of Fukuyoshi et al with the  $\text{Ce}_2\text{O}_3$  of Hosokawa et al as it is merely the selection of functionally equivalent cerium oxides recognized in the art and one of ordinary skill would have a reasonable expectation of success in doing so.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Band whose telephone number is (571) 272-9815. The examiner can normally be reached on Mon-Fri, 9am-5pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. B./

Examiner, Art Unit 1795

/Alexa D. Neckel/  
Supervisory Patent Examiner, Art Unit 1795